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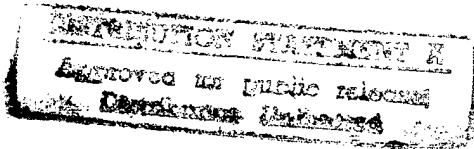
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Deep Battle and Interdiction

Twin Sons of Different Mothers

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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15. Abstract: Current Army and Air Force doctrine and emerging Joint doctrine indicate disagreement on the nature, definition, and purpose of attacking the enemy in the area bounded by the Fire Support Coordination Line (FSCL) and the outer limit of the Land Component Commander's (LCC) Area of Operations (AO). This paper will examine the doctrinal background of the Services' disagreement, the contribution of joint doctrine, and finally the impact of the issue on the Joint Force Commander (JFC). The first task is to define the terms used and look at Service and joint doctrine on the subject. Definitions are important since doctrinally the terms depth, deep battle, deep attack, interdiction, and air interdiction are used interchangeably to the confusion of all involved. Second, I will examine the dilemma the JFC has in determining who is responsible for deep battle and interdiction. Finally, I will draw some conclusions and offer recommendations for modifying existing and emerging joint doctrine			
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Abstract

The modern American way of war is characterized by high-tech weapon systems, fast paced execution, controlled violence, and casualty avoidance. Recent trends in technology and doctrine are focused at the strategic and operational levels of war in an effort to avoid the traditionally large casualty rates of the tactical level. These realities coupled with a relentless pursuit of the technological "high-ground" focuses increasing attention on the doctrinal concepts of deep battle and interdiction. Current Army and Air Force doctrine and emerging Joint doctrine indicate disagreement on the nature, definition, and purpose of attacking the enemy in the area bounded by the Fire Support Coordination Line (FSCL) and the outer limit of the Land Component Commander's (LCC) Area of Operations (AO).¹

This paper will examine the doctrinal background of the Services' disagreement, the contribution of joint doctrine, and finally the impact of the issue on the Joint Force Commander (JFC). The first task is to define the terms used and look at Service and joint doctrine on the subject. Definitions are important since doctrinally the terms depth, deep battle, deep attack, interdiction, and air interdiction are used interchangeably to the confusion of all involved. Second, I will examine the dilemma the JFC has in determining who is responsible for deep battle and interdiction. Finally, I will draw some conclusions and offer recommendations for modifying existing and emerging joint doctrine.

Preface

I will limit my analysis to the ongoing deep battle/interdiction debate between the Army and Air Force and how it impacts on the JFC. By limiting my analysis to the land battle, I am not implying that this issue does not exist for the Naval Services. The unique nature of naval operations in general coupled with the organization and doctrine of the Marine Corps in particular would unnecessarily complicate my discussion. However, the same issues that exist for the Army and Air Force will exist in a theater where the Marines have a place in the Joint Force Land Component (JFLC). The Navy will have similar issues relating to the demarcation of maritime theaters and the coordination of air assets where significant Air Force assets exist in theater. Additionally, this paper is limited to the mid-to-high intensity battlefield. Battlefield framework issues exist across the spectrum of war but are clearly more complex (from a force integration perspective) on a mechanized battlefield.

Most of my resources for this paper are the approved Army and Air Force doctrinal publications in addition to the approved and draft joint doctrine. A significant amount of background and service insight was gathered in theses from the Service War and Staff Colleges.

The Twins

Commanders normally seek to conduct operations to gain maximum advantage at minimum risk to their forces. For example, ground commanders stress counterfire and maneuver operations while air commanders stress strategic attack, counterair, and interdiction; yet all seek to attack deep targets and enemy air defenses to provide maximum flexibility for their forces. Such operations are not always mutually supportive, especially when resources are scarce. (Quote from a joint article by the Chiefs of Staff of the Army and Air Force)²

The ongoing debate between the Army and the Air Force over deep battle and interdiction doctrine is similar to a competition between twins. The Service doctrines are like twins because they share a common patriarch (joint doctrine) but at the same time are colored by the Service from which they were born. Just as when real brothers compete the bond of blood serves to intensify, rather than temper the competition. A parent's firm application of discipline is usually all that is required to foster healthy competition and avoid an unhealthy rivalry.

The current state of doctrine, both Service and joint, has left the Joint Force Commander (JFC) in the position of making doctrinal decisions about the deep battle and interdiction much like the patriarch described above. Current Army and Air Force doctrine, and emerging Joint doctrine, indicate disagreement on the nature, definition, and purpose of attacking the enemy beyond the Fire Support Coordination Line (FSCL) but within the Land Component Commander's (LCC) Area of Operations (AO). The eventual outcome of the ongoing debates will drive service doctrine development, impact weapons system procurement, and possibly determine the success or failure of the next war. The debate, at its core, is about primacy of doctrine. Air doctrine tends to emphasize the wide-ranging flexibility of power delivered from aircraft as the key

ingredient in war, while land warfare doctrine usually assumes the ultimate need to exert some degree of control over the ground and tends to see airpower as a useful, and at times even necessary, supporting force in the performance of this ultimate mission.³ The dilemma for the JFC is how to meld the sometimes divergent philosophies into a coherent joint operation. The philosophical foundations of the disagreement can be understood by comparing in the basic service doctrine of the Army (FM 100-5, *Operations*) and the Air Force (AFM 1-1, *Basic Aerospace Doctrine*). The joint doctrine on this issue is predominately found in Joint Pub 3-0, *Doctrine for Joint Operations* and the third draft of Joint Pub 3-03, *Doctrine for Joint Interdiction Operations*. The lack of clear joint doctrine leaves the JFC in the position of establishing doctrine in order to execute an operation rather than executing an operation with established doctrine.

The Army Concept of Deep Battle

The dictionary defines *deep* as both a noun and an adjective.⁴ In practical military terms, the word deep refers to an area of the battlefield in relation to a friendly surface force. Deep at its shallowest point can be viewed as just outside organic direct fire weapons and ground based sensor range of a surface force. Deep, at its maximum point, is normally defined as the outer boundary of an assigned AO. The term deep, when used as an adjective, describes the primary focus of the weapon effect or action. Deep weapon systems, for instance, are normally focused on targets that cannot be engaged by a ground based direct fire weapon. Deep attacks refer to attacking enemy forces before they are within the range of ground based direct fires. Deep battle is more than a mission or a range of systems; it is an integral part of the Army's framework for combat.

Army doctrinal concepts for combat operations are organized in terms of a battlefield framework consisting of three elements; the area of operations, battlespace, and operations in depth. Understanding the Army position of deep battle requires a basic understanding of the framework in which Army commanders view the battlefield.

The first element of the battlefield framework is the area of operations. Army doctrine defines an AO as: a geographical area assigned to an Army commander by a higher commander -- an AO has lateral and rear boundaries which usually define it within a larger joint geographical area.⁵ A key facet of the AO is that it must be appropriate in size and design so that the commander can accomplish his mission and protect his force. The AO represents the physical boundaries of a commander but not the commander's limits.

The second element of the battlefield framework is the concept of battlespace. Army doctrine defines battlespace as: components determined by the maximum capabilities of a unit to acquire and dominate the enemy; includes areas beyond the AO; it varies over time according to how the commander positions his assets.⁶ Battlespace replaces the previous doctrinal concepts of area of interest and area of influence with an integrated view of the area of combat. Battlespace is a physical volume that expands or contracts in relation to the ability to acquire and engage the enemy.⁷ The concept of battlespace is a key in the Army's linkage between the tactical, operational, and strategic levels of war. The advent of advanced acquisition systems, coupled with long range targeting and precision attack, has enabled the LCC to narrow the distinction between

tactical operations and those normally considered operational and even strategic. In his critique of the 1993 version of FM 100-5 *Operations*, Major General Holder noted:

*"Its [FM 100-5] addition of battlespace establishes a logical progression of operational areas from the theater of war to the theater of operations into the tactical realm. This adds consistency to our doctrinal view of physical divisions of the areas of combat. This is important because it stakes out Army interests in a contested area of joint and service doctrine. Without such an explanation, we would abandon a vital dimension of operations to air theorists who are inclined to limit the land offensive to the fight between committed forces and claim everything beyond the range of organic fires to the air commander's responsibility."*⁸

Battlespace does not represent a new set of restrictive boundaries. In fact, battlespaces may overlap especially on a rapidly changing battlefield.

The final element of the battlefield framework is operations in depth. Operations in depth is defined as the totality of the commander's operations against the enemy -- composed of deep, close, and rear operations which are usually conducted simultaneous in a manner that appears as one continuous operation against the enemy.⁹ The Army places enormous emphasis on depth and simultaneous attack as the key component of maintaining the initiative over an enemy. The application of depth and simultaneous attack blurs the boundaries among tactics, operations and strategy.¹⁰ It is important to remember that operations in depth includes deep battle but is not synonymous with it.

The purpose of deep battle, when conducted simultaneously with close and rear, "is to deny the enemy freedom of action and to disrupt or destroy the coherence and tempo of operations."¹¹ Equally important to the purpose of deep battle is the range of options available to conduct it. Army doctrine identifies the following operations in support of deep battle; interdiction by ground and air maneuver and fires, either singly or

in combination; deep surveillance and target acquisition; and command, control, and communications countermeasures (C³CM).¹² Deep battle includes interdiction which is seen as an element of firepower and based on its intended effect may constitute a significant element of a [LCC's] operational firepower.¹³

The Army concept of deep battle is central to its warfighting doctrine. The popular impression of an Army concerned about a battlefield defined by limited direct and indirect weapon ranges has dramatically changed over the past ten years. For example, Major General Holder noted that in the 1986 version of FM 100-5 *Operations*, the concept of deep battle was limited with the phrase: "deep operations supplemented close operations; the tie was direct and unbreakable."¹⁴ However, in the 1993 version of FM 100-5 *Operations*, deep battle's importance was elevated with the concept that; "[c]ommanders may pursue separate battle objectives by using deep and close combat operations, either of which may be the main effort."¹⁵ This view of the deep battle as a potential main effort is surprisingly in line with basic Air Force doctrine on interdiction. Although most references to deep battle in Army doctrine presupposes a close fight will occur (the historical norm), the concept that a deep battle that can achieve an objective is now part of that doctrine.

The Air Force Concept of Interdiction

Interdiction is defined as a verb which means to destroy, cut off, or damage.¹⁶ Traditionally, interdiction is accomplished at ranges beyond the immediate vicinity of a ground force. The concept of immediate vicinity is relative to the force, terrain, and weapon systems used. Interdiction operations can have a strategic, operational, or tactical

impact depending on their location and/or effects. Just as the Army's concept of battlespace gives relevance to deep battle, the Air Force's basic roles of airpower gives interdiction its relevance.

Air Force doctrine delineates four basic roles of airpower: aerospace control, force application, force enhancement, and force support. Aerospace control is universally accepted as the most important role of the Air Force. Force enhancement and force support are enabling roles that support the Air Force and the JFC across a wide spectrum of missions. Within the role of force application there are three missions: strategic attack, interdiction, and close air support. When viewed from a level of war perspective, interdiction falls naturally into the operational niche between strategic (strategic attack) and tactical (close air support). Air Force doctrine defines interdiction as the application of force to delay, disrupt, divert, or destroy an enemy's military potential before it can be brought to bear against friendly forces.¹⁷ The Air Force, in the broadest doctrinal terms, views interdiction as virtually and practically synonymous with airpower.

Underpinning the roles of airpower are the seven tenets of aerospace power: centralized control/decentralized execution, flexibility/versatility, priority, synergy, balance, concentration, and persistence. Interdiction reflects elements of all seven aerospace tenets. *The practical application of the tenet of centralized control of interdiction, not interdiction itself, is what causes friction with Army doctrine.* Air Force doctrine states that to achieve efficiencies and enhance effectiveness, the air component commander should control all forces performing interdiction and integrate interdiction

with surface force operations to achieve the theater commander's objectives.¹⁸ As applied to the joint battlefield, are the terms interdiction and air interdiction synonymous?

Air interdiction is not synonymous with interdiction. Air interdiction is a subset of interdiction. The distinction between interdiction and air interdiction is important in a practical sense because it highlights the sometimes great divide between Army and Air Force doctrine. The predominate Army view is that interdiction is a means to an end. The predominate Air Force view holds that interdiction can be an end in itself and operationally is usually synonymous with air interdiction. Both Services recognize the value of interdiction and air interdiction to the surface battle but disagree on its role.

One of the most important concepts in Air Force interdiction doctrine is the dilemma created for the enemy commander when interdiction is combined with surface maneuver. If the enemy attempts to counter surface maneuver (actual or potential) by massing or moving rapidly, he exposes himself to losses from air interdiction; if the enemy employs measures to reduce the losses caused by air interdiction, he will lose or reduce his ability to maneuver fast enough to counter the maneuver of friendly surface forces.¹⁹ Air Force doctrine promotes the concept that ground force maneuver can, and in some circumstance should, support the application of air interdiction.

Air Force doctrine states that air interdiction provides a commander with an important means for creating friction for an enemy whose surface forces are beyond the range of the *majority* of friendly surface weapons. The doctrine further states that because synchronization is usually vital to effectiveness, the theater commander should make the Joint Force Air Component Commander (JFACC) responsible for controlling

the overall interdiction effort when aerospace forces provide the preponderance of interdiction capability.²⁰

Joint Doctrine

There is clearly a divergent view of the battlefield when it comes to deep battle and interdiction operations between the Army and the Air Force. The Army sees interdiction as a subset of the deep battle while the Air Force sees interdiction as a distinct theater wide function best executed under centralized control. The obvious solution for the JFCs in dealing with divergent Service views is to refer to the *authoritative* joint doctrine on the subject. Normally the benefit of joint doctrine, in terms of a debate between two services, is that it is authoritative. As stated in the Preface to Joint Pub 3-0, *Doctrine for Joint Operations*;

*"The guidance in this publication is authoritative; as such, this doctrine will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence..."*²¹

Before looking at the *authoritative* joint solution to the divergent Service doctrine, a review of what joint doctrine has to say about deep battle and interdiction is instructive. Each Service is required to align its doctrine with joint doctrine where appropriate. *In the debate over deep battle and interdiction, each Service has declared its doctrine consistent with joint doctrine.*

Joint Doctrine and Deep Battle

The term, deep battle, is not specifically defined in joint doctrine. Within a JFCs Joint Operations Area (JOA) there may be several subordinate AOs each with distinct boundaries and each with different baselines from which to measure deep.

The concept of depth is discussed in joint doctrine as an operational characteristic.²² Joint doctrine defines simultaneity and depth as bringing force to bear on the opponent's entire structure in a near simultaneous manner to overwhelm and cripple enemy capabilities and the enemy's will to resist.²³ The term "entire structure" is a physical description of space (close and rear), level of war (strategic, operational, and tactical) or a combination of both. Joint Pub 3-0 also describes depth as a concept that "seeks to overwhelm the enemy throughout the battle area from multiple dimensions, contributing to its speedy defeat or capitulation."²⁴ The term "multiple dimensions" refers to types of attacks (air, direct, indirect, lethal, non-lethal, etc.) or by attacking the enemy across the strategic, operational and tactical levels of war. Finally, depth is described in terms of using time and space to shape future conditions and contributing to the protection of the force by disrupting enemy potential before it can be utilized.²⁵ The use of time refers to attacking an enemy's decision cycle and removing the time required to plan and execute operations. The use of space refers to the physical space within a given AO or available for enemy use.

Joint Doctrine and Interdiction

Interdiction is defined by Joint doctrine as an action to divert, disrupt, delay, or destroy the enemy's surface potential before it can be used effectively against friendly

forces.²⁶ This definition, like the Air Force's, does not indicate a particular service or weapon system that is generally involved. Joint doctrine identifies interdiction capable forces as including: land and sea based fighter and attack aircraft and bombers; ships and submarines; conventional airborne, air assault, or other ground maneuver forces; Special Operations Forces (SOF); amphibious raid forces; surface-to-surface, subsurface-to-surface, and air-to-surface missiles, rockets, munitions, and mines; artillery and naval gunfire; attack helicopters; EW systems; antisatellite weapons; and space-based satellite systems or sensors.²⁷ Clearly, all contributors to the JFC's operation are potentially interdiction forces.

The interdiction dilemma faced by an enemy commander, as described in Air Force doctrine, is highlighted in joint doctrine as one of the most dynamic concepts available to the joint force commander.²⁸

The JFC may use the various combinations of forces described above in combination with surface maneuver to achieve the desired objectives. The trade-off and the tension between competing doctrines are left for the JFC to sort out given the specific conditions of the theater. Joint doctrine also recognizes that, under certain circumstances, the JFC may choose interdiction as the principal means to achieve the intended objective.

The JFC's Dilemma

In order to coordinate and deconflict joint action, the JFC must determine the structure of the theater and organize the forces available. In a theater where functional

component commanders are established, a key question for the JFC becomes: who is responsible for deep battle and interdiction?

Air Force doctrine stakes out responsibility for interdiction, based on clear doctrinal guidance from Joint Pub 3-0, for the JFACC. The Army, again using Joint Pub 3-0 as a reference, sees the designated JFLCC as the responsible commander for interdiction, along with all other operations, within the assigned AO. This kind of confusion hardly supports the concepts of unity of command and unity of effort. Keeping in mind the sometimes vague interpretation of interdiction versus air interdiction, the following *authoritative* statements of joint doctrine from Joint Pub 3-0 highlights the JFC's dilemma;

- Land and naval force commanders designate the target priority, effects, and timing of interdiction operations within their AOs.²⁹
- (Referring to the apportionment decision) The JFACC will use these priorities to plan and execute the theater-wide interdiction effort.³⁰
- The JFACC is the supported commander for the JFC's overall air interdiction effort.³¹
- JFC's may choose to employ interdiction as a principal means to achieve the intended objective (with other components supporting the component leading the interdiction effort).³²

- Within these AOs (referring to those designated by the JFC), land and naval operational force commanders are designated the supported commander and are responsible for the synchronization of maneuver, fires, and interdiction.³³

The draft version of Joint Pub 3-03 Doctrine for Joint Interdiction Operations, continues the vague authoritative doctrine over interdiction responsibility.

- Numerous subordinate commanders possess resources that can contribute to interdiction. However, since there will rarely be enough of those assets to meet all demands, a single commander can best ensure the unity of effort required to enable optimum use of joint interdiction assets.³⁴
- Components supporting the overall theater interdiction effort, or the joint effort as a whole, may also conduct interdiction operations as part of their specific mission.³⁵

So who is responsible for interdiction? The only clearly defined commander that can doctrinally claim the mission is the JFC. The JFACC and the JFLCC can simultaneously claim the responsibility as long as both are supporting or executing the JFC's interdiction priorities. Lacking an authoritative joint doctrine and divergent Service doctrine, the JFC must, as stated in the preface to Joint Pub 3-0, treat deep battle and interdiction as an "exceptional circumstance."

Conclusion

Sir Michael Howard made the following observations on doctrine: "first, that it would always be wrong since it could never be based on a completely accurate prediction

of combat conditions; second, that flexibility of mind and organization was the *sine qua non* for military institutions in the opening phases of war; and third, that the standard for doctrine developers in peacetime was to be as little wrong as possible.”³⁶ With an emphasis on being as “little wrong as possible,” joint doctrine has left the doctrinal issues of deep battle and interdiction largely up to the JFC. The current state of joint and Service doctrine on the subject of deep battle and interdiction leaves critical battlefield issues unresolved.

The reason the debate over deep battle and interdiction is so contentious is because it pits the fundamental Air Force tenets of centralized control/decentralized execution against the Army tenets of depth and synchronization. For the Army, its tenets represent basic truths. FM 100-5, *Operations* describes the tenets as characteristics of successful operations and as essential to victory.³⁷ The Air Force is equally dedicated to the tenets of aerospace power as described in AFM 1-1, *Basic Aerospace Doctrine*. The Air Force sees its tenets as important guidelines and considerations for commanders in addition to the principles of war. They (the tenets of aerospace power) highlight important ways aerospace forces differ from surface forces and reflect a specific understanding of the aerospace medium and current aerospace capabilities.³⁸

Current joint doctrine pays homage to both Service concepts while providing no clear guidance to the JFC. A lot of effort has gone into accommodating both Services’ doctrines. The use of the Joint Targeting Control Board, modifications to the purpose of the Fire Support Coordination Line, and Joint Precision Interdiction initiatives are

examples of accommodation to Service doctrine without establishing authoritative joint doctrine.

Authoritative joint doctrine should establish doctrinal principles that a JFC can apply to most situations in any theater. The lack of clear doctrine on deep battle and interdiction makes the JFC responsible for establishing joint doctrine. Joint doctrine established on a theater-by-theater basis is not authoritative and does not provide a common perspective. Theater derived joint doctrine does not adequately provide a framework for the acquisition and prioritization of new systems or as to which capabilities are critical for which missions. The “least wrong” approach to deep operations and interdiction doctrine represented by Joint Pub 3-0 and the draft of Joint Pub 3-03 approaches the point of not being doctrine at all, but a series of disjointed compromises.

Recommendations

Any recommendation for solving a doctrinal issue should be the result of a reasoned analysis of all relevant information and a balanced view of how the doctrine will be implemented in the future. Any recommendation for solving the deep battle/interdiction problem is unlikely to satisfy both Services since the issue goes beyond basic doctrine into operational tenets. Additionally, the rapidity at which technology is changing the basis of long held doctrinal norms makes selecting “best qualified” to accomplish the mission a temporary solution. My recommendation attempts to resolve the disconnects in joint doctrine and strike a doctrinal balance between the historical dominance of surface forces and the modern promise of airpower.

First, establish authoritative joint doctrine that unambiguously defines the space and responsibility between the FSCL and the outer limit of the LCC's AO. Second, define the space beyond the limits of the LCC's AO as the Joint Force Deep Battle Area. Finally, broaden the terms used in joint doctrine to be more inclusive and representative of the forces available to the JFC.

The confusion over who has responsibility for operations between the FSCL and the outer limit of the LCC's AO should be eliminated. Theater responsibility for air interdiction should be defined as distinct from the LCC's deep battle, which includes elements of interdiction. The Army and Air Force have no debate over the nature of the close battle and the requirement to maintain unity of command to achieve unity of effort. The evolution of advanced systems is expanding the requirement to maintain unity of command over a greater battlespace in order to achieve objectives and protect the force.

Joint doctrine should designate a Joint Deep Battle Area (JDBA) beyond the AOs assigned to surface commanders. The doctrine for operations within the assigned AO of the LCC should be clarified with respect to supported and supporting relationships. A single commander should be designated as the supported commander for the joint deep fight to ensure unity of command and to provide for unity of effort.

The joint deep battle would give the JFACC a theater focus at the operational to strategic level while preserving for the LCC the flexibility required to conduct integrated operations at the tactical and operational levels of war. A new boundary is not necessary, just a simplification of guidance provided in Joint Pub 3-0 and Joint Pub 3-03. Current procedures for air apportionment and theater target priorities are adequate to

support the needs of the land force without destroying the flexibility inherent in airpower. The placement of the outer limit of the LCC's AO would be dependent on all the same factors used to delineate the FSCL; placement of enemy forces, anticipated rates of movement, weapons capabilities, and tempo of operations.³⁹

The concept of a JDB beyond the LCC's AO supports the operational vision described in the Chairman of the Joint Chiefs of Staff's *Joint Vision 2010*. In Joint Vision 2010, the future of joint warfare will hinge on four operational tasks; dominate maneuver, precision engagement, full-dimensional protection, and focused logistics--enabled by information superiority.⁴⁰ Achieving the operational tasks of Joint Vision 2010 will require centralized control and decentralized execution across a defined battlespace. Functional solutions that take preeminence over integrated solutions will not take advantage of the emerging technologies and doctrines.

Joint doctrine should readdress the use of the term interdiction to describe actions beyond the close battle. Interdiction has become narrowly defined in terms of subsequent actions and is too closely associated with only one Service. A more appropriate term and one that is more representative of the multidimensional systems involved is deep battle. The Services' contribution to deep battle may include, for example: interdiction, air interdiction, deep maneuver, information warfare, and precision interdiction. Deep battle doctrine would emphasize integrating the emerging system of systems across a battlespace to achieve tactical, operational, and strategic objectives. Deep battle doctrine could be applied at either the operational or strategic levels of war. Assigning

responsibility for deep battle execution would simplify the supported and supporting relationships because interdiction (all forms) are included in deep battle.

Just as twins cannot change the bonds of nature, the doctrine of the Army and Air Force are bound together on the joint battlefield. It is up to joint doctrine to provide the discipline necessary to work as a team.

End Notes

1. The debate over deep battle and interdiction is only one of several emerging in the same area of the battlefield. The emerging joint doctrine for air and missile threats, theater missile defense, joint fire support, and even command and control all have similar problems in dealing with Army and Air Force doctrine.
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